WHAT IS CLAIMED:

1. A method for removing oxygen contaminants from ammonia contaminated with oxygen, said method comprising the steps of contacting the oxygen contaminated ammonia with a getter material including iron and manganese to sorb said oxygen contaminants from said contaminated ammonia to produce thereby ammonia substantially free of oxygen.

2. The method of claim 1 wherein said step of contacting said contaminated ammonia is performed at temperature of between about 50 °C and about -20 °C.

3. The method of claim 2 wherein said step of contacting said contaminated ammonia is performed at temperature of about 25 °C.

4. The method of claim 1 wherein said getter material is a finely divided metal powder of specific surface greater than about 100 m^2/g.

5. The method of claim 1 wherein said getter material is deposited on a support selected from the group consisting of zeolites, porous alumina, porous silica and molecular sieves.

6. The method of claim 5 wherein said supports have a specific surface greater than about 100 m^2/g.

7. The method of claim 1 wherein the weight ratio of said iron to said manganese in said getter material is between about 10:1 and about 1:2.

8. The method of claim 7 wherein the weight ratio of said iron to said manganese in said getter material is between about 10:1 and about 1:1.

9. The method of claim 8 wherein the weight ratio of said iron to said manganese in said getter material is between about 10:1 and about 2:1.

10. The method of claim 9 wherein the weight ratio of said iron to said manganese in said getter material is between about 10:1 and about 4:1.

11. The method of claim 10 wherein the weight ratio of said iron to said manganese in said getter material is between about 10:1 and about 5:1.

12. The method of claim 11 wherein the weight ratio of said iron to said manganese in said getter material is between about 9:1 and about 6:1.

13. The method of claim 12 wherein the weight ratio of said iron to said manganese in said getter material is between about 8:1 and about 6:1.

14. The method of claim 13 wherein said weight ratio of said iron to said manganese is about 7:1.

15. The method of claim 1 further comprising the step of contacting said oxygen contaminated ammonia with a drying material selected from the group consisting of barium oxide, calcium oxide, strontium oxide, and zeolites.

16. The method of claim 1 further comprising the step of contacting said ammonia substantially free of oxygen with a drying material selected from the group consisting of barium oxide, calcium oxide, strontium oxide, and zeolites.

17. A method for removing oxygen contaminants from ammonia contaminated with oxygen, said method comprising the steps of:

a) contacting the oxygen contaminated ammonia with a getter material including iron and manganese to sorb said oxygen contaminants from said contaminated ammonia to remove substantially said oxygen from said contaminated ammonia gas; and

b) a drying material selected from the group consisting of barium oxide, calcium oxide, strontium oxide, and zeolites to remove thereby water from said ammonia gas.

18. The method of claim 17 wherein said step of contacting said contaminated ammonia is performed at temperature of between about 50 °C and about -20 °C.

19. The method of claim 18 wherein said step of contacting said contaminated ammonia is performed at temperature of about 25 °C.

20. The method of claim 17 wherein said getter material is a finely divided metal powder of specific surface greater than about 100 m^2/g.

21. The method of claim 17 wherein said getter material is deposited on a support selected from the group consisting of zeolites, porous alumina, porous silica and molecular sieves.

22. The method of claim 21 wherein said supports have a specific surface greater than about 100 m^2/g.

23. The method of claim 17 wherein the weight ratio of said iron to said manganese in said getter material is between about 10:1 and about 1:2.

24. The method of claim 23 wherein the weight ratio of said iron to said manganese in said getter material is between about 10:1 and about 1:1.

25. The method of claim 24 wherein the weight ratio of said iron to said manganese in said getter material is between about 10:1 and about 2:1.

26. The method of claim 25 wherein the weight ratio of said iron to said manganese in said getter material is between about 10:1 and about 4:1.

27. The method of claim 26 wherein the weight ratio of said iron to said manganese in said getter material is between about 10:1 and about 5:1.

28. The method of claim 27 wherein the weight ratio of said iron to said manganese in said getter material is between about 9:1 and about 6:1.

29. The method of claim 28 wherein the weight ratio of said iron to said manganese in said getter material is between about 8:1 and about 6:1.

30. The method of claim 29 wherein said weight ratio of said iron to said manganese is about 7:1.

31. An apparatus for removing oxygen contaminants from ammonia contaminated with oxygen, said apparatus comprising an impure gas inlet in fluid communication with a gas purification chamber, said gas purification chamber including a getter material comprising a mixture of iron and manganese, said gas purification chamber being maintained under conditions effective to cause the sorbtion of substantially all of the oxygen from said contaminated ammonia when said contaminated ammonia is brought into contact with said getter material to provide a purified ammonia gas that is substantially free of oxygen contaminants, said gas purification chamber being in fluid communication with a gas outlet from which said purified ammonia is released.

32. The apparatus of claim 31 further including means for maintaining a temperature of between about 50 °C and about -20 °C in said gas purification chamber.

33. The apparatus of claim 32 further including means for maintaining a temperature of about 25 °C in said gas purification chamber.

34. The apparatus of claim 31 wherein said getter material is a finely divided metal powder of specific surface greater than about 100 m^2/g.

35. The apparatus of claim 31 wherein said getter material is deposited on a support selected from the group consisting of zeolites, porous alumina, porous silica and molecular sieves.

36. The apparatus of claim 35 wherein said supports have specific surface greater than about 100 m^2/g.

37. The method of claim 31 wherein the weight ratio of said iron to said manganese in said getter material is between about 10:1 and about 1:2.

38. The method of claim 37 wherein the weight ratio of said iron to said manganese in said getter material is between about 10:1 and about 1:1.

39. The method of claim 38 wherein the weight ratio of said iron to said manganese in said getter material is between about 10:1 and about 2:1.

40. The method of claim 39 wherein the weight ratio of said iron to said manganese in said getter material is between about 10:1 and about 4:1.

41. The method of claim 40 wherein the weight ratio of said iron to said manganese in said getter material is between about 10:1 and about 5:1.

42. The method of claim 41 wherein the weight ratio of said iron to said manganese in said getter material is between about 9:1 and about 6:1.

43. The method of claim 42 wherein the weight ratio of said iron to said manganese in said getter material is between about 8:1 and about 6:1.

44. The apparatus of claim 43 wherein said weight ratio of said iron to said manganese is about 7:1.

45. The apparatus of claim 31 wherein said gas purification chamber includes a drying material selected from the group consisting of barium oxide, calcium oxide, strontium oxide and zeolites.

46. The apparatus of claim 45 wherein said drying material is co-mingled with said getter material in said gas purification chamber.

47. The apparatus of claim 45 wherein said drying material is isolated from said getter material in said gas purification chamber.

48. The apparatus of claim 47 wherein said contaminated ammonia contacts said getter material prior to contacting said drying agent.

49. The apparatus of claim 47 wherein said contaminated ammonia contacts said drying agent prior to contacting said getter material.

50. The apparatus of claim 31 wherein said apparatus further includes a separate purification device for removing water contaminants from ammonia contaminated with water, said purification device comprising impure gas inlet in fluid communication with a gas

purification chamber, said gas purification chamber including a drying material selected from the group consisting of barium oxide, calcium oxide, strontium oxide and zeolites, said gas purification chamber being maintained under conditions effective to cause the sorbtion of substantially all of the water from said contaminated ammonia when said contaminated ammonia is brought into contact with said drying material to provide a purified ammonia gas that is substantially free of water contaminants, said gas purification chamber being in fluid communication with a gas outlet from which said purified ammonia is released.

51. The apparatus of claim 50 wherein said contaminated ammonia contacts said getter material prior to contacting said drying agent.

52. The apparatus of claim 50 wherein said contaminated ammonia contacts said drying agent prior to contacting said getter material.

53. A method for producing a semiconductor device using high purity ammonia, comprising the steps of:

a) contacting contaminated ammonia containing oxygen contaminants with a getter material including iron and manganese to sorb said oxygen contaminants from said contaminated ammonia to remove substantially said oxygen contaminants from said contaminated ammonia gas to produce a purified ammonia gas;

b) introducing said purified ammonia gas to a semiconductor wafer processing chamber; and

c) processing a semiconductor wafer in the processing chamber to produce at least one semiconductor device.

54. The method of claim 53 wherein said step of contacting said contaminated ammonia is performed at temperature of between about 50 °C and about -20 °C.

55. The method of claim 54 wherein said step of contacting said contaminated ammonia is performed at temperature of about 25 °C.

56. The method of claim 53 wherein said getter material is a finely divided metal powder of specific surface greater than about 100 m^2/g.

57. The method of claim 53 wherein said getter material is deposited on a support selected from the group consisting of zeolites, porous alumina, porous silica and molecular sieves.

58. The method of claim 57 wherein said supports have a specific surface greater than about 100 m^2/g.

59. The method of claim 53 wherein the weight ratio of said iron to said manganese in said getter material is between about 10:1 and about 1:2.

60. The method of claim 59 wherein the weight ratio of said iron to said manganese in said getter material is between about 10:1 and about 1:1.

61. The method of claim 60 wherein the weight ratio of said iron to said manganese in said getter material is between about 10:1 and about 2:1.

62. The method of claim 61 wherein the weight ratio of said iron to said manganese in said getter material is between about 10:1 and about 4:1.

63. The method of claim 62 wherein the weight ratio of said iron to said manganese in said getter material is between about 10:1 and about 5:1.

64. The method of claim 63 wherein the weight ratio of said iron to said manganese in said getter material is between about 9:1 and about 6:1.

65. The method of claim 64 wherein the weight ratio of said iron to said manganese in said getter material is between about 8:1 and about 6:1.

66. The method of claim 65 wherein said weight ratio of said iron to said manganese is about 7:1.

67. The method of claim 53 further comprising the step of contacting said oxygen contaminated ammonia with a drying material selected from the group consisting of barium oxide, calcium oxide, strontium oxide, and zeolites.

68. The method of claim 53 further comprising the step of contacting said ammonia substantially free of oxygen with a drying material selected from the group consisting of barium oxide, calcium oxide, strontium oxide, and zeolites.